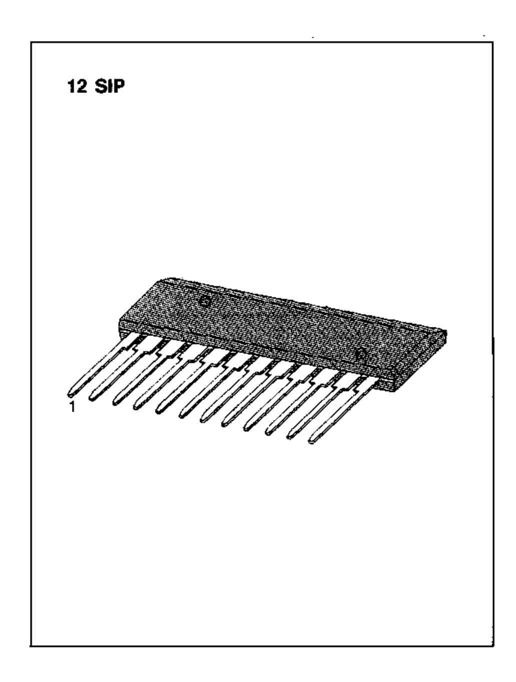
HORIZONTAL SIGNAL PROCESSING

The KA2135 is a monolithic integrated circuit designed for the horizontal signal processing circuit for CRT displays of television receivers, and monitors.



FUNCTIONS

- Polarity Switches
- X-Ray Protectors
- AFC
- Hori. OSC
- Pre Amp
- Pulse Width Adjustment

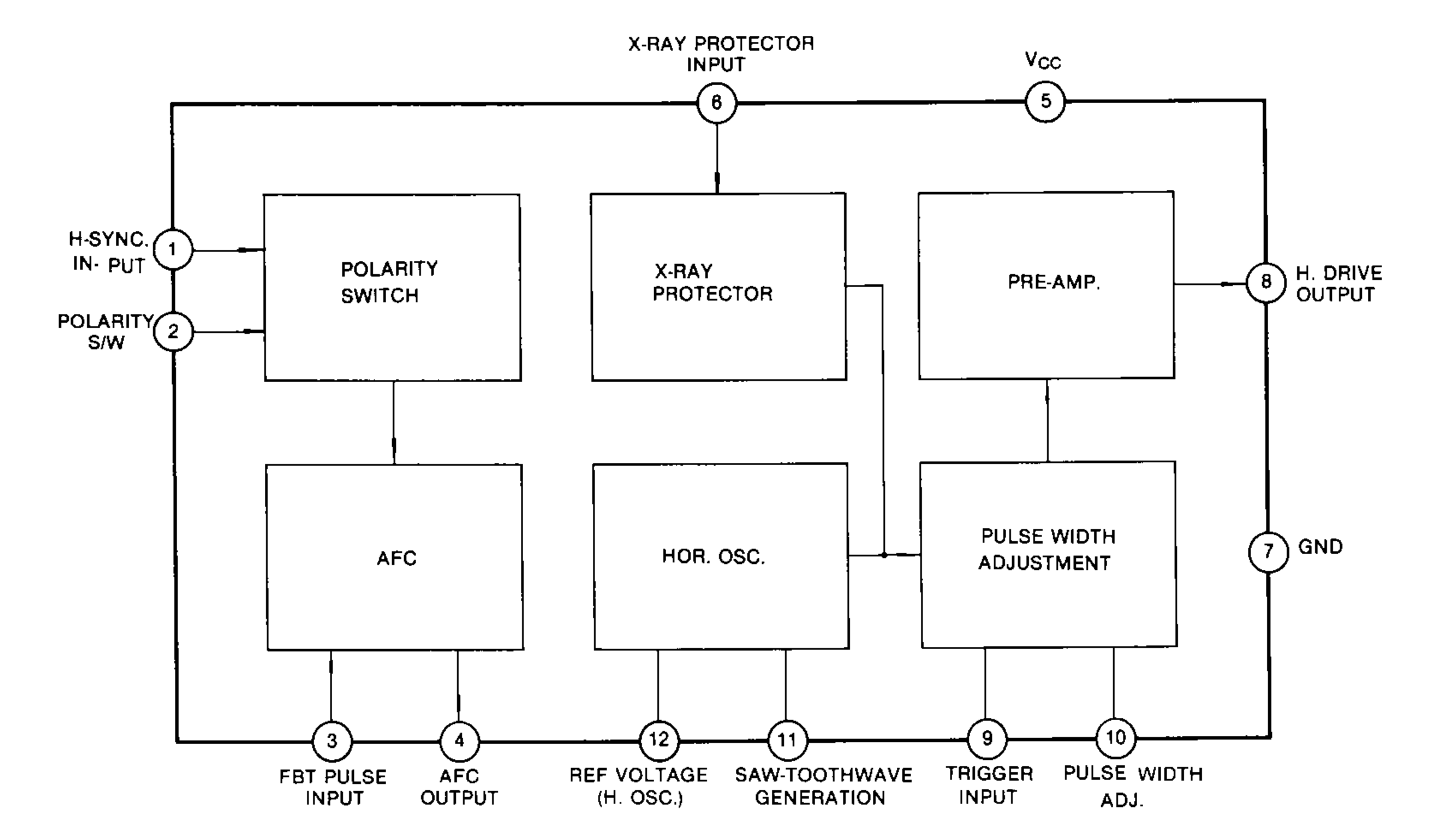
FEATURES

- **Processing for both negative & positive SYNC signal**
- **Wide horizontal oscillation frequency range (14KHz ~ 60KHz)**
- **Wide output pulse width selection (2μs ~ 40μs)**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2135	12 SIP	−20 ~ +70°C

BLOCK DIAGRAM



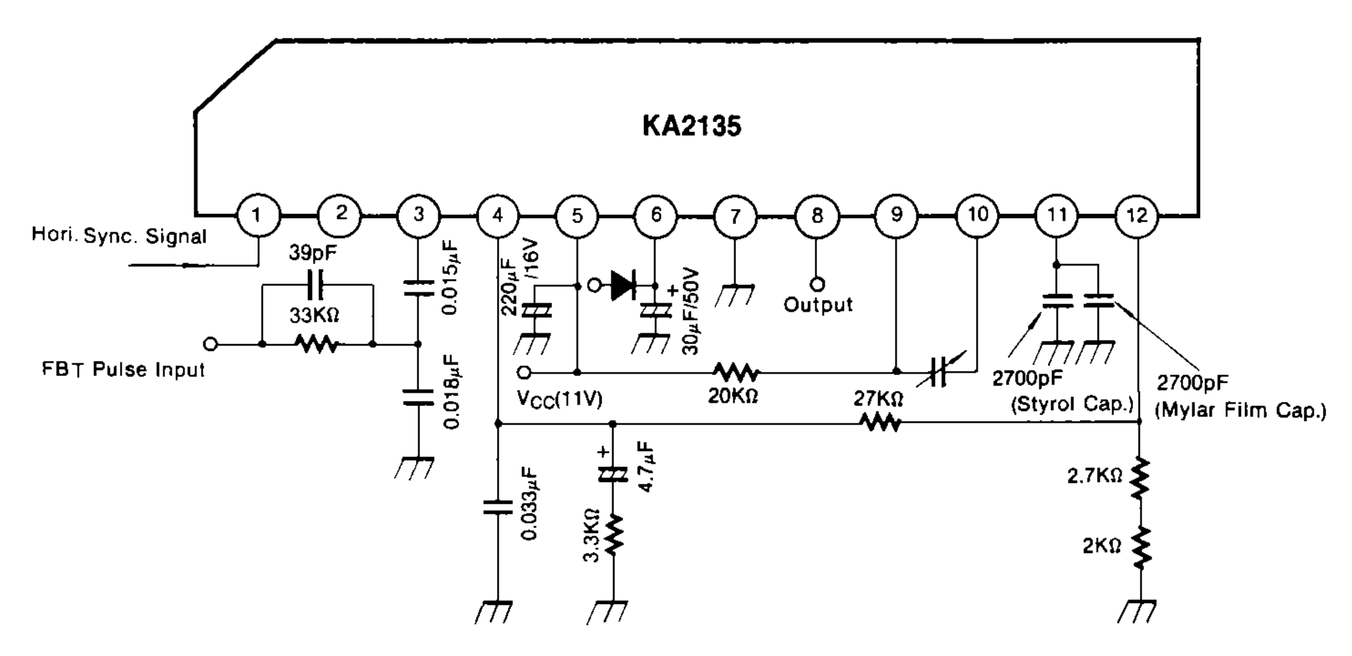
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	13.2	V
Supply current	I_{cc}	50	mA
Power Dissipation	P_D	1140	mW
Operating Temperature	T_{OPR}	−20∼+70	°C
Storage Temperature	T_{STG}	−40∼+150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

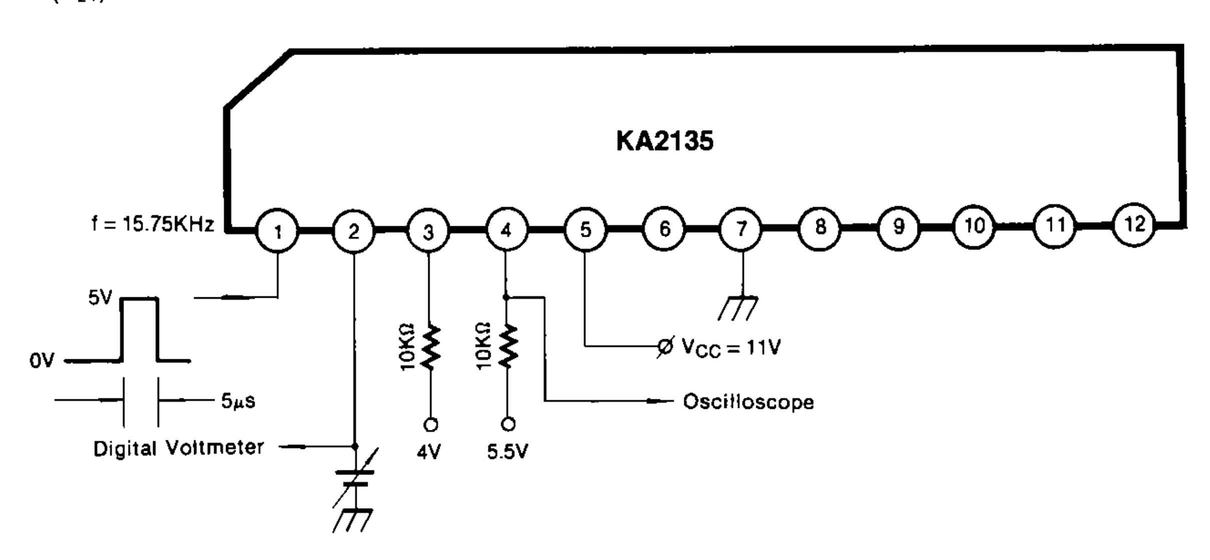
Characteristic	Symbol	Test Circuit	Condition	Min	Typ	Max	Unit
Total Supply Current	I_{CC}		V_{CC}=11V	30	45	60	mA
Polarity Switching Voltage 1	V_1	1	Positive Signal I_N	0		0.4	V
Polarity Switching Voltage 2	V_2	1	Negative Signal I_N			2.5	V
Hori. OSC Starting Voltage	$V_{OSC\text{-}S(H)}$	2	f_{HO}=12KHz~19KHz			7.5	V
Hori. OSC Frequency	$f_{HO(1)}$	2	V_{CC}=11V, C=4400pF	15.0	15.75	16.5	KHz
Hori. OSC Frequency Range	$f_{HO(2)}$	3	V_{CC}=11V, C=820pF, 5600pF	14		60	KHz
f_{HO} to Supply Voltage Ratio	$\Delta f_{HO}/V_{CC}$	2	f_{HO}=15.75KHz, f_{HO}/9.9V − f_{HC}/12.1V		40	130	Hz
f_{HO} to Ambient Temperature Ratio	$\Delta f_{HO}/T_A$	2	f_{HO}=15.75KHz, f_{HO}/−20°C − f_{HO}/60°C			260	Hz
OSC Frequency Control Sensitivity	S_{OSC}	4	ΔI_O= ±25μA	16.0	17.6	19.3	Hz/μA
D.C. Loop Gain	G_{DC}		$\mu \times S_{OSC}$		700		Hz/μs
Output Pulse Width	$t_{HO(1)}$	5	V_{CC}=11V, R=20KΩ, C=6800pF	17.8	19.4	21.2	μs
Output Pulse Width Selection	$t_{HO(2)}$	5	V_{CC}=11V, R=20KΩ, C=330pF, 18000pF	2		40	μs
Output Pulse Width to Supply Voltage Ratio	$\Delta t_{HO}/V_{CC}$	5	V_{CC}=9.9V~12.1V			5	%
Output Pulse Width to Supply Temperature Ratio	$\Delta t_{HO}/T_A$	5	V_{CC}=11V, Ta= −20°C~ +60°C			5	%
OSC Output Saturation Voltage	V_8		V_{CC}=11V, $V_{10\text{-}7}$=1V			2.0	V
OSC Output Drive Current	V_8		V_{CC}=11V, $V_{10\text{-}7}$=1V	300			mA
X-Ray Protection Start Voltage	V_8	2	V_{CC}=11V	0.5	0.64	0.75	V

TYPICAL APPLICATION CIRCUIT

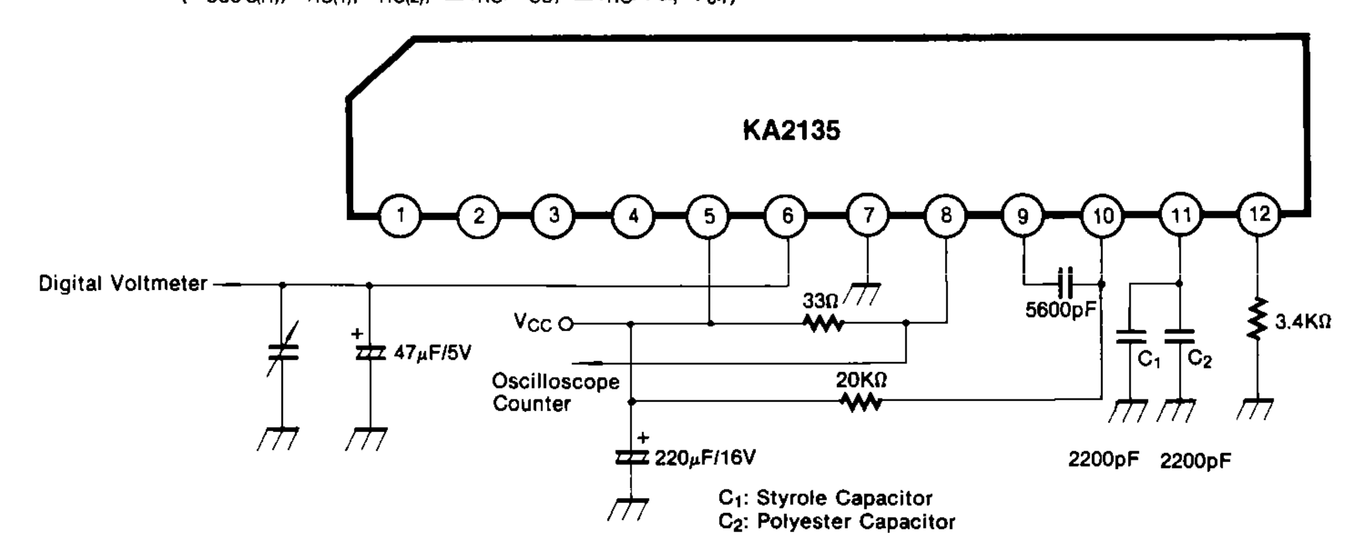


TEST CIRCUIT

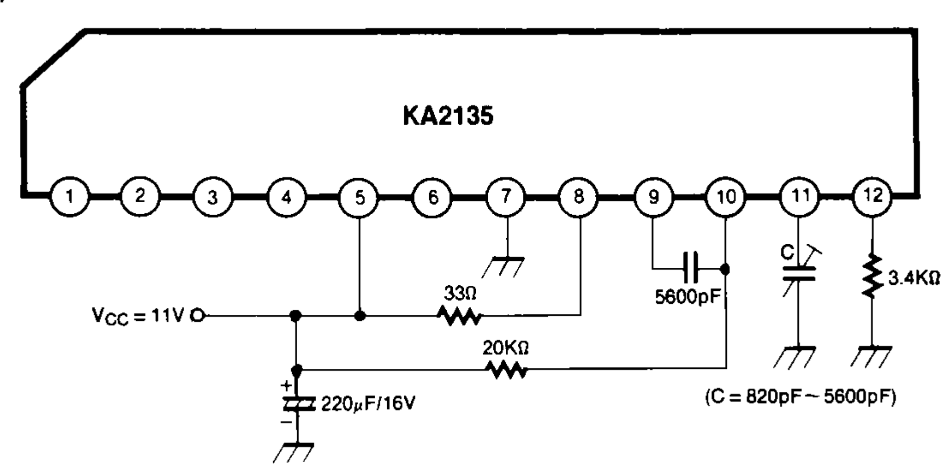
Test Circuit 1 ($V_{2\text{-}7}$)



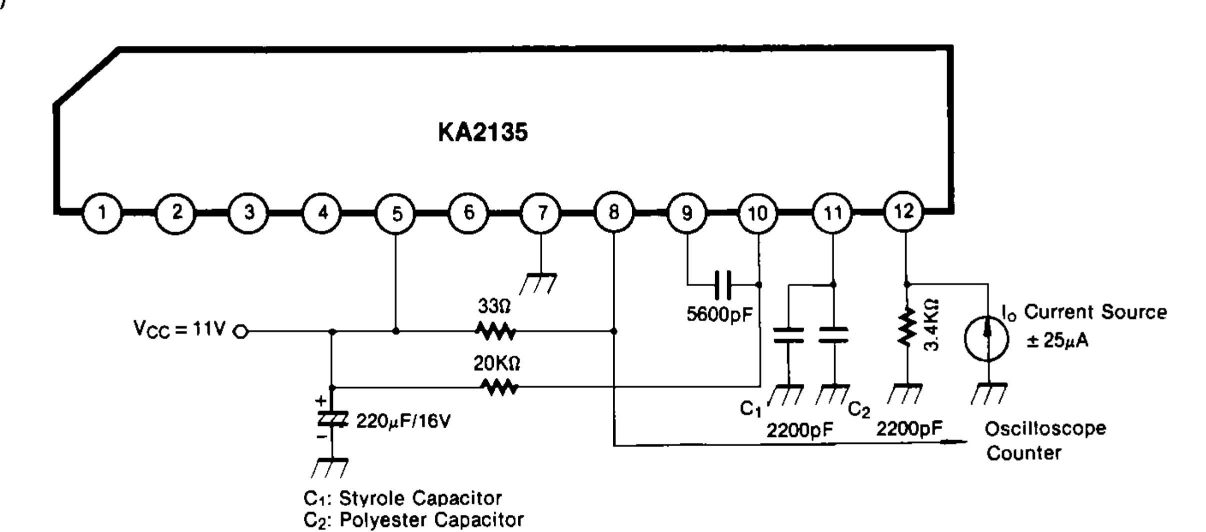
Test Circuit 2 ($V_{OSC\text{-}S(H)}$, $f_{HO(1)}$, $f_{HO(2)}$, $\Delta f_{HO}/V_{CC}$, $\Delta f_{HO}/Ta$, $V_{6\text{-}7}$)



Test Circuit 3 ($f_{HO(2)}$)



Test Circuit 4 (β)



Test Circuit 5 ($\Delta V_{CC}/\Delta Ta$)

